

DEPARTMENT OF DEFENSE BLOGGERS ROUNDTABLE WITH REAR ADMIRAL
LAWRENCE S. RICE, DIRECTOR, CHIEF OF NAVAL OPERATIONS ENVIRONMENTAL
READINESS DIVISION SUBJECT: UNDERSTANDING SONAR: THE U.S. NAVY'S NEED
FOR SONAR TRAINING, RESEARCH AND MARINE MAMMAL PROTECTION
MODERATOR: CHARLES "JACK" HOLT, CHIEF, NEW MEDIA OPERATIONS, OFFICE OF
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ADM. RICE: Hi, this is Rear Admiral Larry Rice.

MR. HOLT: Rear Admiral Rice, thank you very much for joining us here on the Bloggers'
Roundtable.

Admiral Rice is the director of the Chief of Naval Operations Environmental Readiness
Division, N45. Admiral, Rice, thanks for being with us this morning.

ADM. RICE: Thank you.

MR. HOLT: Do you have an opening statement for us? ADM. RICE: Yeah. Let me just
talk about why we need sonar. I know there's a lot of folks out there talking about sonar and
marine mammals, and if the answer is simple as just shutting the sonars down, I think we'd make
everybody happy, although I'm not sure we'd make the American public happy.

So let me talk about why the Navy uses sonar. How's that sound?

MR. HOLT: All right, sir, that'd be good.

ADM. RICE: Good. You know it's been awhile since the Navy was at war and the country
was at war when submarines were a significant threat, which I think is part of the problem, is
people's memory doesn't go back very far.

But if you go back to World War II and think about what U.S. submarines did in World War
II, when we blockaded Japan, essentially cut them off. They were unable to get fuel for their
planes and ships. They were unable to get aluminum and steel for their industry; unable to get food
for their people.

Additionally we sunk over -- U.S. submarines sunk over 5 million tons of shipping headed towards Japan. Just to give you an idea on what 5 million tons is, that is every United States Navy cruiser, destroyer, frigate and aircraft carrier at the bottom of the ocean. So that is a significant amount of shipping that submarines sunk in World War II.

Additionally, the U.S. Navy did that with only 1.6 percent of its manpower. So for a very small buck input, you get a big bang output, something that I'm sure terrorist cells today would love to get their hands on. You can just imagine if al Qaeda got their hands on a submarine and started sinking tankers exiting the Persian Gulf, where about 14 million barrels of oil leave everyday, what that would do to the world's economy.

During the Cold War it was pretty easy to find submarines. Most of them were Soviet; they were fairly loud. And we had listening devices that we could hear them with. Unfortunately now, with the more advanced diesel electric submarines and the new fuel cell technology submarines that are coming, they are really, really quiet, and they're next to impossible just to hear, which means the way we need to find them is with active sonar, and that's why we need to train with active sonar.

So with that as a -- as a lead in, I'm ready for your questions.

MR. HOLT: All right, sir. Now there has been a lot of talk about what sonar does to mammals. Can you talk a little bit about the research that N45 is doing regarding sonar impact on mammals.

ADM. RICE: Sure. I think it's important to realize that the Navy itself does not do the research. The last thing we want to be accused of is tobacco science. So what the Navy does is the Navy funds the research. In the past couple of years we spent anywhere from 10 (million dollars) to 14 million (dollars) annually; over the next five years, just because we're ramping up the program, we're getting ready to spend about 18 million (dollars) a year to study sonar's effect on marine mammals.

The marine mammal research is carried out by a number of institutions that a lot of folks will recognize: Boston University, Duke University, University of Hawaii, University of California-San Diego, U.C. Santa Cruz, Scripps Institute, Woods Hole Oceanographic Institute up in Massachusetts. So the money goes to programs that those institutions then run.

MR. HOLT: Well, what -- can you talk a little bit about some of what the research findings -- research has been finding -- some of the recent findings?

ADM. RICE: What we -- what we focus on are estimating the location and abundance of the marine mammals; the effects that sonar has on the hearing, physiology and behavior of them; and tools that the Navy can use to manage what that does. And I'll get kind of side- tracked here, and then I'll get back to your question.

But right now the Navy employs 29 mitigation measures to assure that we don't hurt marine mammals when we're out doing our sonar exercises. And if you check the record you'll find that since we've been using those, we have -- sonar has been attributed to zero incidents with marine mammals. So we think they're working, and we're pretty good stewards of the environment.

As far as exact results of what the research has brought so far, it's a little early. We had a great study down in the Bahamas just this last summer that NOAA, Woods Hole, St. Andrews overseas, actually, was also a partner in that, to study the effect of sonar on beached whales, and they're still collating that information. I think it's a little bit early to decide what's happened on that study yet.

MR. HOLT: Okay. The -- how many -- or prior to the research, prior to what you'd mentioned this past year, historically, how many beachings, or how many incidents have been related to sonar as far as the effect on mammals -- beachings and what have you?

ADM. RICE: That's a -- that's an interesting question because as you can imagine there are a lot of different statistics out there, and which ones you use become problematic. So let me use the - - I'll use the Navy statistics, and then I'll talk about our opponents' statistics.

By our calculations, the sonar has been implicated in five strandings. The total over 10 years is about 50 mammals. So in other words, it's five a year. If I use our opponents' numbers, they go all the way back to 1960, and their numbers add up to about four-and-a-half a year. So although you can use different statistics, the numbers are still single digit numbers of marine mammals stranding per year attributed to sonar.

Let me contrast that with natural strandings, if you want to call them that, in the -- these are not Navy numbers, these are fisheries numbers; you can get online and anybody can get these. Those numbers vary anywhere between about 2,500 a year and 4,500 a year. Again, that's 10 a day, as opposed to five a year attributable to sonar. And they strand because they're sick, because of weather pattern, because who knows why. They're marine mammals, and they strand, and that's just something that they do.

And again, remember those numbers: five a year for sonar; 3,600 a year on the average for natural causes; and then the commercial fishermen, when they're out there with their big long lines and big nets, worldwide that number is about 600,000 per year. So we're talking huge numbers compared to sonar.

MR. HOLT: Wow! Now, are other navies involved in some of the research, our allied navies? Or who else is doing research out there that -- contributing to the sonar?

ADM. RICE: I don't have a list of names for you, but I can tell you that we fund about 50 percent of marine mammal research worldwide. So there's other folks out there spending money; just nobody, no single funder as large as the U.S. Navy. That research, when you talk about what we've garnered from it, we've gotten, in 2004, 2005 about 65 peer-reviewed articles in professional journals, as you can see in your fact sheet.

So we're getting some good information out of the research.

MR. HOLT: Are there any moves afoot to make any kind of, say, global standards, efforts to move towards getting all navies to adapt some sort of standards for, say, mitigation efforts?

ADM. RICE: NATO is working on coming up with -- remember, I told you the 29 standards that we use. We gave those to them. We briefed the -- some of the higher-up folks in the NATO military organization a few years back, and a couple of years ago gave them those 29 measures that we use as well as a protective measures protocol that we have every ship using, even if they're just out there by themselves. We gave those to NATO, and there's a move to incorporate those in the NATO planning document.

But as you can imagine, trying to get all the different governments on board to adopt a single standard, you see that in Kyoto, how tough that is; it's equally as hard when dealing with sonar and marine mammals.

MR. HOLT: Exactly. Now in the fact sheet, I was flipping across here, can you kind of explain a little bit of the difference between active sonar and passive sonar?

ADM. RICE: Sure. I touched on that on the opening statement. Passive sonar is simply a listening device; it's a speaker, and what we're listening to is, hopefully, the sound of a submarine going by. You can imagine, though -- and I know everybody's seen those World War II movies of the diesel submarines when they just sit on the bottom -- you can imagine what it'd be like trying to listen to a submarine sitting on the bottom of the Straits of Hormuz waiting for a tanker or a warship to drive by.

So passive sonar is just listening to what's going on out there. For anybody that's a diver, an ocean diver, they know that the ocean is not a quiet place. There's lots of noise out there. There's whales that are singing; there's dolphins that are clicking; there's seismic moves; there's wave sound; there's wind sound. It's a pretty noisy place. So for a sonar operator to be able to listen alone to hear a submarine, that's really tough, and it depends a lot on the submarine itself making noise. Active, on the other hand, is sending out noise and listening for the return of that noise as it bounces off of something. And in our case, we hope that's a submarine.

And while we're talking about that, let me explain the displays that the sonar operator is using. It's picking up the sound in the ocean. Remember, I talked about all the noise that was out there. In addition to all the noise that's out there, he's trying to listen for the sound of his sonar bouncing off of something and returning.

And it's not like a video game where you know where the bad guys are and where the good guys are. He's got to pick this out on a scope that looks kind of like a -- how do I describe the display -- kind of like an oscilloscope, only it doesn't have the wavy lines on it. But he's got to pick this out of a scope and find a submarine amongst all the other stuff that's out there.

MR. HOLT: That could be a challenging job. Now is there a reason why, for example, the active sonar is -- are there decibel levels that -- or frequency levels that are the primary cause for concern here?

ADM. RICE: We have three different types of sonar, and, again, ships around the world, even whale-watching ships, even your buddy's fishing boat that you may go out on the weekend with, a fish-finder uses sonar to find the fish down there, only its display obviously is a lot easier to see the fish than our display.

But those, fathometers (ph), fish finders, we use a high frequency. The mid-frequency sonar is what U.S. Navy ships use to find submarines. And then low frequency, you have seen low frequency sonar in the news as well. But mid-frequency is what's on our ship, what's on our destroyers, frigates and cruisers that we use to find the submarines with.

MR. HOLT: Okay. Is it -- does it necessarily have to be a certain frequency? Is that one of the -- one of the things at issue here, for example, to cut through the clutter, or to be able to be recognizable by the receiver?

ADM. RICE: The high frequency sonar dissipates very rapidly. So were we to use high frequency sonar to find submarines, the range would be really short. In other words, they'd be -- we'd probably see their torpedoes headed at us before we found the submarines.

Low frequency sonar goes a really long way. And although we have a couple of those low frequency ships that the Navy uses to find submarines, it's a much bigger source that's required to generate that, something that we can't put on warships. So mid-frequency is a good compromise between size of transmission unit required, if that's a good way to put that, and the range that we can detect submarines at. MR. HOLT: Now, are there -- you know, we had talked a little bit about standards for sonar, global standards for sonar. Are there any maritime laws, or things like that, that are -- that have an effect on how and when we use sonar?

ADM. RICE: I'm not sure I understand your question.

MR. HOLT: Well, it's -- I'm looking if any, say, environmental laws or things of that nature that -- that would be -- I guess it goes back to -- it's probably a poorly-phrased question -- goes back to the global standards, I suppose -- but any environmental laws that would be of guidance towards use of sonar?

ADM. RICE: Sure. We use the Marine Mammals Protection Act, the Endangered Species Act, and the national Environmental Protection Act. So we're -- we use all three of those U.S. laws worldwide, if that answers your question.

MR. HOLT: Okay, yeah, that's -- yeah, that's what I was stumbling around trying to get to.

ADM. RICE: Yeah, if you go to the whalesandsonar.navy.mil website you can actually see a sonar scope, and what that looks like on the website, and how difficult it is, getting back to your original question on --

MR. HOLT: Okay.

ADM. RICE: -- on why we use active sonar.

MR. HOLT: Okay. And that's at www.whalesandsonar.navy.mil?

ADM. RICE: That's correct.

MR. HOLT: Okay. And that's whales and sonar one word there.

ADM. RICE: Whales and sonar one word, right.

MR. HOLT: All right. Well, thank you very much for being with us today. I really appreciate this.

Is there anything else you'd like to leave us with? Any closing comments, sir?

ADM. RICE: Yeah, we get a lot of questions on -- with why don't we use technology more? In other words, why can't we take these sonar operators, and we obviously have those scopes in our labs to practice working on them. But why can't we just do that training synthetically? In other words, put them in the trainer and then send them out on the ships to go find this. And that we can could work on practicing sonar and save the environment as well. My answer to that would be, number one, again with our mitigation measures that we currently employ, we've seen no impact on marine mammals. And the other one is, you can imagine what it'd be like putting all the 16-year-olds in a trainer, and the first time they ever got in a car was when they had their license. It's difficult. And when I talk to expert sonar operators, they tell me it takes upwards of about 10 years behind a sonar scope operating at sea under a variety of adverse conditions. And again, it depends on the salinity, it depends on the density, it depends on the temperature; a lot of -- a lot of environmental factors that change not only day to day but mile-by-mile as they -- as they drive that ship through the water. And that's where they have to get the training is out at sea under actual conditions, and not just behind -- or working in a trainer.

MR. HOLT: All right, sir. Thank you very much.

Rear Admiral Lawrence Rice with us on the Bloggers Roundtable today. He's the director of chief -- director, Chief of Naval Operations for Environmental Readiness Division N45, U.S. Navy.

Thank you, sir, for being with us, and hopefully we can speak again, sir.

ADM. RICE: Thank you. I appreciate it.

END.